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DEPARTMENT OF ECOLOGY
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George Boggs
Whatcom Conservation District
6975 Hannegan Road
Lynden, WA 98264

Krista Mendelman
U.S. EPA, Region 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101

Re: Ecology Comments on Proposed ARM Project

Dear George and Krista:

The Washington Department of Ecology (Ecology) would like to express significant concerns with Whatcom Conservation District's (WCD) project "Protecting Puget Sound Watersheds from Agricultural Runoff Using a Progressive Manure Application Risk Management (ARM) System".

Given our desire to work with the Environmental Protection Agency (EPA) and WCD to improve water quality in Whatcom County, we offer the following comments in hopes of achieving a common understanding of how to best move the project forward. We appreciate having the opportunity to review the proposal in its entirety as well as WCD's April 30, 2010 presentation on the project.

As the project proposal correctly states, water quality problems in the project area are severe. Nitrate contamination is widespread in the Sumas-Blaine Aquifer that underlies much of the Lower Nooksack Basin and parts of the Drayton Harbor Watershed (Figure 1). Nitrate concentrations exceed 10 mg/L (drinking water standard) throughout the aquifer, including many areas mapped as "low risk" in the grant application.

In spite of existing contamination, the Sumas-Blaine Aquifer is the primary local drinking water source with a depth to water of less than 10 feet in much of the aquifer. The aquifer

thickness is also limited to an average of 50 feet. Thousands of local residents obtain water from shallow wells. Seventy-one percent of 35 private wells tested in 2003-2005 were over the drinking water standard for nitrate at least one time. In addition, fecal coliform levels have increased in 6 out of 8 local creeks since 2004**.**

WCD's proposal correctly states: "In Whatcom County, as in many other counties in the state, impacted and poorly managed agriculture (in particular, manure application by dairies) has repeatedly been identified as a leading contributor to air and water pollution in the watersheds." Ecology agrees with this statement, which is why we stated the following in our February 2009 letter to WCD:

> "Department of Ecology supports efforts to research, develop, and ensure compliance with nutrient management planning and the application of management practices **that increase surface and groundwater protection**. Specifically, Ecology supports nutrient management **that prevents leaching of nutrients to shallow ground water during all times of the year, and also prevents the runoff of nutrients from manure applied lands**." (emphasis added)

Given the severity of the area's water quality problems, new management actions should err on the side of caution. While Ecology shares WCD's concern about fall manure applications and supports the project's focus on limiting that practice, we are very concerned about increasing manure application at any time during the winter months. **Given risk factors inherent in the ARM proposal, Ecology believes it should move forward only if it is designed and scaled as a research study as opposed to an implementation project**.

If initial efforts under a research approach demonstrate positive results, Ecology believes the ARM system may contribute to a broader approach to improve nutrient management to achieve clean water. It is critical that ARM be part of that broader discussion as opposed to being viewed as the solution. For Whatcom County and other areas of the state, Ecology believes that such an approach includes the following:

- Correct acknowledged problems with the state's dairy program by improving oversight and implementation of all nutrient management plans, including proper agronomic rates and transfers;
- Implement protective vegetative practices and setbacks around waterways; and,
- Increase compliance and enforcement of water quality laws at the local, state and federal level.

Ecology understands that we – like WCD and EPA – have a central role to play in an effective and comprehensive approach. Current limitations on Ecology's resources and authorities (e.g., problems with dairy program), however, must be addressed for Ecology to fulfill our clean water responsibilities. We appreciate support for our efforts to address these shortfalls.

Concerns about the Proposal

The ARM proposal raises significant concerns given all of our efforts working with WCD, EPA, the Department of Agriculture and the Dairy Federation over many years to understand the vulnerability of Whatcom County ground and surface water and to develop and implement a fecal coliform TMDL. A summary of Ecology's main concerns about the project are as follows:

1) Although groundwater monitoring is mentioned in the proposal, WCD's April 30th presentation indicates there are no plans for tracking groundwater conditions.
2) Risk factors listed in the ARM system are currently not adequate to protect both groundwater, surface water, and shellfish growing areas (e.g., permeable soils are rated "low risk" in the proposal).
3) Complex chemical, biological, and physical systems in soil and groundwater make predictions of the impacts of winter manure application uncertain.
4) It is unclear that the ARM System is at least as protective of groundwater quality as AKART (all known, available, and reasonable technology). The Ground Water Quality Standards (Ch. 173-200 WAC) apply to dairies, which for nutrient application is:
    a. Agronomic application; and,
    b. Storage during the non-growing season.
5) While agronomic rate is the focus of ARM, winter storage is not adequately addressed in the proposal (e.g., if conditions do not allow for application in either October or early the next calendar year, how will manure be managed?).
6) Oversight is lacking to ensure that land owners conduct field tests appropriately and apply amounts of nitrogen needed by the crop.

Suggestions for Improving the Study

1) Include Nutrient Management Plan (NMP) provisions:
    a. Require farms eligible for ARM testing to have up-to-date farm plans (number of cows, amount of land, winter storage capacity). We suggest that WCD re-certify participating NMP's and make them available to Ecology and Agriculture for inspection.
    b. Notify Ecology (Bellingham Field Office) and Agriculture of the location and provide ARM spreadsheet information from the WCD when manure is applied in winter at study sites.
    c. For those dairies that are permitted CAFOs, these operations are required to follow nutrient management plans that have been reviewed and approved by Ecology. Permitted CAFOs in Whatcom County would only be eligible to participate in an ARM pilot project if their plans are revised to incorporate the ARM **and** are reviewed and approved by Ecology.

2) In partnership with Ecology and Agriculture, revise the logic model and risk factors to adequately protect groundwater, surface water, and shellfish growing areas, incorporating the following risk factors:
    a. Adequately identify coarse-textured soils, which pose a high risk for groundwater.
    b. Exclude from consideration for application using ARM fields where:
        i. Ground water nitrate exceeds 5mg/L, or
        ii. Fall soil nitrate exceeds 15 mg/kg, or
        iii. Phosphorus index is high or very high, or
        iv. Vegetation is sparse.
    c. Implement vegetative buffers at all locations using the ARM where surface waters or conduits to surface or ground waters exists. Such buffers should meet NRCS FOTG to reduce sediment, sediment absorbed contaminants and dissolved contaminants.
    d. Setbacks should be consistently applied in conjunction with vegetative buffers.
3) Contract with a Washington-licensed hydrogeologist to design and conduct groundwater monitoring and analyze results according to standard operating procedures consistent with those used by the USGS. Items to include (from Nielsen, 2006): monitoring network design; sampling protocols; analytical protocols; and data analysis.
4) Ensure that monitoring objective(s) include either before/after or control/test conditions to evaluate the effectiveness of the ARM System in protecting groundwater, surface water, and shellfish.
5) Scale back the number of test fields to 4 every 2 years. At least 2 years of monitoring data are needed to account for variation in weather, crop growth, and management practices. Reduction in test fields will free up funding to support groundwater and crop monitoring.
6) Based on the outcome of the first 2 years of study, add 2 additional sites in year 3. The control site for the initial 2 years may serve as a control for the additional site(s) added in year 3.
7) Monitor harvested crop nitrogen to help evaluate program effectiveness.
8) Perform testing and evaluation of monitoring results before revising additional NMPs to include the ARM System. Involve Ecology, EPA, Agriculture, NRCS, the Conservation Commission and the Lummi and Nooksack tribes, and local entities in decisions related to implementing the ARM System in additional NMPs.

Lastly, Ecology needs to be clear that under federal law we have a responsibility to take compliance action whenever we are made aware of a pollution discharge. We will not focus on ARM participants but such participants must understand that the project does not

immunize them from the law. With respect to compliance and enforcement, Ecology will not treat ARM participants any differently than any other producer.

We have done a tremendous amount of work with the WCD and EPA over the years. Ecology is eager to get back to the clean water successes of the late 1990s early 2000s that we worked collaboratively to achieve in Whatcom County. Over the past couple decades, the regulatory, environmental and market changes have been significant. Consequently, we need much better coordination and communication to effectively meet these challenges in a way that improves environmental protection while working for farmers.

Thank you for the opportunity to comment on the project proposal. We would like to continue to participate in development of this study. Ecology's point of contact for this work is Dick Grout, who can be reached at (360) 715-5203. Dick will be supported by staff Ron Cummings and Barb Carey, particularly on technical matters. You can also reach me at (360) 407-6829 should you have any questions.

Sincerely,

Josh Baldi
Special Assistant to the Director

cc: Nora Mena, Department of Agriculture
Mark Clark, Conservation Commission
Roylene Rides-at-the-Door, Natural Resource Conservation Service
Tom Eaton, Environmental Protection Agency

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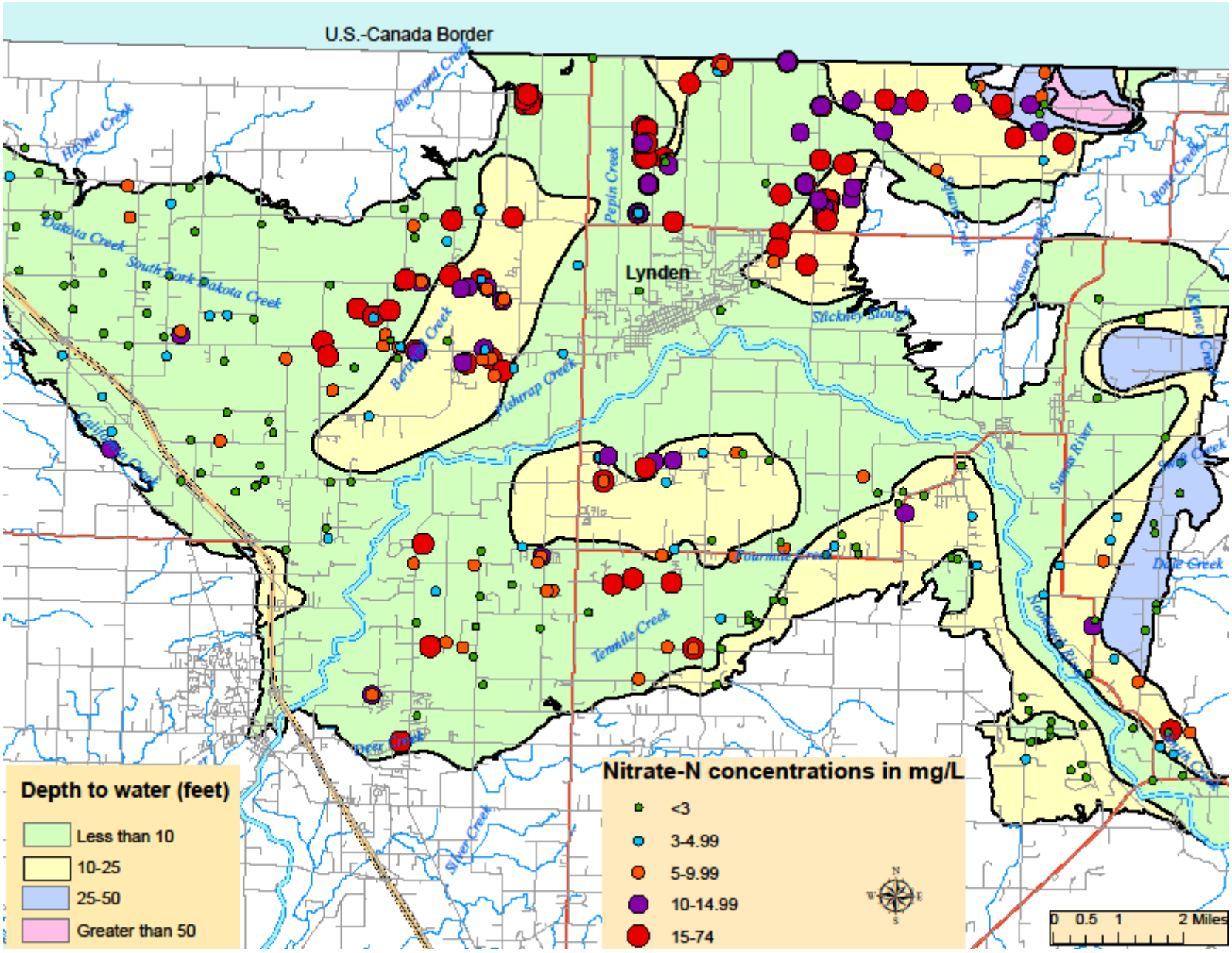

Figure 1. Groundwater nitrate concentrations in wells sampled by Ecology from 1997 through 2007 and depth to water (Tooley and Erickson, 1996; Erickson, 1998; Carey, 2002; Redding, 2008, and unpublished data from Ecology's Environmental Assessment Program).